tension and foaming data for malate esters of the above structure in which R_1 and R_2 are C2 and C8 alkyl groups, namely *diethyl malate and dioctyl malate.* Dynamic surface tension and foaming data for the *diisopropyl, dihexyl* and *dibenzyl malate esters*, as well as other malate ester within the scope of the claims, already exist in the present application in Tables 1 and 2, pages 23 and 27, respectively.

The following Table A compares the dynamic surface tension data for the diethyl, dioctyl and dibenzyl malates with the data for di(C3-C6)alkyl malates according to the invention which are presented in Table 1 at page 23 of the specification. The dynamic surface tension (γ) data in Table A is the limiting γ, i.e., the surface tension at maximum solubility which is the wt% shown in Table A, except for the diethyl and diisopropyl malates.

Table A - Comparative Dynamic Surface Tension Data

Malate	Ex	Wt%	γ (0.1 b/s)	γ (1 b/s)	γ (6 b/s)	γ (20 b/s)
Dioctyl [a]	A	0.001	70.3	70.6	71.0	72.4
Dioctyl [a]	B	0.1	51.8	68.6	70.5	72.6
Diethyl [b]	C	5	46.1	46.5	47.0	48.6
Diisopropyl	11	5	33.6	33.8	34.0	35.3
Di(n-butyl)	12	0.3	35.8	36.0	36.5	38.6
Di(iso-butyl)	13	0.4	33.5	33.3	33.4	35.3
Di(sec-butyl)	14	0.6	36.5	36.7	37.3	38.1
Di(n-pentyl)	15	0.03	36.8	38.2	40.5	50.1
Di(iso-pentyl)	16	0.04	35.6	36.8	39.5	48.0
Di(2-methylbutyl)	17	0.04	37.8	38.9	41.2	49.7
Di(n-hexyl)	18	0.005	55.6	65.2	69.3	71.2
Di(4-methyl-2-pentyl)	19	0.02	40.8	50.9	63.9	69.4
Dibenzyl	20	0.08	54.0	57.7	60.3	70.0

a) Dioctylmalate was insoluble at both 0.001 wt% and 0.1 wt%
b) Diethylmalate was completely soluble at 5 wt%

The dynamic surface tension data demonstrate that the selection of the malic acid diester is key in achieving sufficient dynamic surface tension reduction in aqueous compositions. Furthermore, these data show that the low dynamic surface tension results

obtained for the C3-C6 dialkyl malates of the claimed invention are truly unexpected when compared to malates with less than C3 or greater than C6 alkyl groups. The data show that C6 alkyl groups are at the edge of acceptance. For instance, dioctylmalate is too insoluble (i.e., < 0.001 wt%) to significantly reduce surface tension. While diethylmalate is completely soluble at 5 wt%, it is too inefficient as evidenced by a dynamic surface tension value of only 46.5 dyne/cm at 6 b/s.

The following Table B compares the foaming data for the diethyl, dioctyl and dibenzyl malates with the data for di(C3-C6)alkyl malates according to the invention which are presented in Table 2 at page 27 of the specification.

Table B - Comparative Foaming Data

Malate	Ex	Wt%	Initial foam (cm)	Time to zero foam (sec)
Dioctyl	B	0.1	0	0
Diethyl	C	0.1	2.4	7
Diisopropyl	21	0.1	1.3	14
Di(n-butyl)	22	0.1	0.9	20
Di(iso-butyl)	23	0.1	0.6	0.2
Di(sec-butyl)	24	0.1	1.0	60
Di(n-pentyl)	25	0.1	0.5	0.2
Di(iso-pentyl)	26	0.1	0.3	0.3
Di(2-methylbutyl)	27	0.1	1.2	0.1
Di(n-hexyl)	28	0.1	0.5	0.1
Di(4-methyl-2-pentyl)	29	0.1	0	0
Dibenzyl	30	0.1	0	0

Dioctylmalate did not generate any foam because it was insoluble at 0.1 wt%. The foam test was run using the soluble fraction of a formal 0.1 wt% solution. Diethylmalate generated 2.4 cm of foam compared to 1.3 cm of foam generated by diisopropylmalate. The difference between the diisopropyl malate and the diethyl malate in terms of the time to zero foam is not significant in practice. It is more important to avoid foam formation in the first place.

Applicants wish to comment on the rejection of Claims 1-20 under 103(a) over Mattai as maintained by the Examiner of the parent application. (The present Claims 1-20 and parent claims 1-20 are the same.) The Examiner had stated his position that Applicants' limitation of "comprising an aqueous medium which is at least 90 wt% water" is not a significant limitation. While water may be the only chemical compound itself that qualifies as being "aqueous", the Examiner's statements: "Any aqueous medium is 100% water" and "Therefore aqueous means 100% water" do not logically follow.

The Examiner's premise was that water is the only chemical compound which qualifies as "aqueous". However, he had conveniently disregarded the fact that "aqueous" is an adjective that is modifying the word "medium". The dictionary defines "aqueous" as "of, relating to, or resembling water" as one definition, and the next definition as "made from, with, or by water." The term "medium" is defined in the chemical dictionary as meaning "the substance, such as a solvent, that contains something else or that acts as a transmitter of a force."

More importantly, as Applicants pointed out to the Examiner in the amendment mailed 19 July 2001, the support for the amendment which brought this limitation into Claims 1 and 12 could be found at Page 7/12-14: "By 'water-based', 'aqueous' or 'aqueous medium', we mean, for purposes of this invention, a solvent or liquid dispersing medium which comprises at least 90 wt%, preferably at least 95 wt% water. Obviously, an all-water medium is also included." Based on these two dictionary definitions and Applicants' definition in the specification, Applicants submit that the Examiner's rigid statement that aqueous means 100% water is clearly incorrect.

Furthermore, this language is a material limitation establishing patentability and the claims do not as the Examiner alleged "encompass the skin cleaning composition of Mattai".

To formulate this obviousness rejection the Examiner had focused his attention on Col 7/55-65 of Mattai which shows a specific facial cleanser composition comprising 57% water. Based on this specific composition the Examiner contended a sun-protecting composition comprising 90% water and 10% of other ingredients required by Mattai was obvious. Such a composition is logically inconsistent with the very teachings of Mattai.

Initially, Applicants would like to point out that an Examiner cannot pick and choose those sections of a reference which the Examiner believes supports his position to the exclusion of those portions that undermine such position. Applicants must reiterate that Mattai is directed to a skin cleansing, sun-protecting composition comprising a sun-protecting hydrophobic agent, a polar organic solvent, an oil, and a surfactant. Mattai teaches his compositions should contain as little water as possible: "Generally, the water content of the composition is from 0 to about 15 wt% of the composition, or zero to about 10 wt% of the

composition. Preferably, it is better to minimize the amount of water in the composition." See Col. 6/64-67.

Attention is also directed to Mattai's table in Col 7 that shows Examples 1-5 according to Mattai's invention. None of these five compositions contain water. The reason for the absence of water is to maintain a clear monophasic composition. (Col 2/36-39)

Noteworthy is the paragraph (Col 7/55-65) preceding the text relied upon by the Examiner which states: "In contrast to the non-aqueous systems described above", referring to the five examples according to Mattai's invention. The facial cleanser composition the Examiner had focused on does not contain an adipate or lactate oil component as required by Mattai's compositions. Therefore, the nexus to a malate ester is missing in this facial cleanser composition.

Applicants have also previously stated they believe the Examiner was incorrect regarding the showing the Applicants must make to overcome a 103 rejection. Applicants stated their burden is to present evidence that their claimed invention (use of malates in aqueous compositions for reducing dynamic surface tension) is nonobvious over the closest prior art. Applicants need not show that some specific embodiment of Mattai's invention constructed by the Examiner from Mattai's broad disclosure with hindsight knowledge of Applicants' claims shows unexpected superiority over Mattai's working examples. Applicants cited MPEP 716.02, 716.02(b) and 716.02(e) in support. Applicants submit the Examiner had not appropriately addressed Applicants' comments regarding the appropriate showing.

Accordingly, the Applicants submit that there is no teaching, suggestion or direction in Mattai to select Applicants' defined malate diesters from Mattai's extensive listing of possible esters and diesters for use as a low foaming, biodegradable surfactant to reduce equilibrium and dynamic surface tension in aqueous compositions, i.e., Applicants' claimed subject matter as a whole defined in Claims 1-20.

In view of the above remarks and the Rule 132 Declaration, Applicants believe the application is in condition for allowance.

Respectfully submitted,

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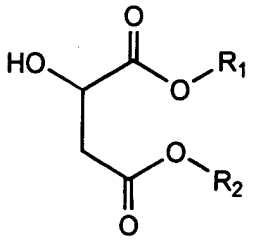
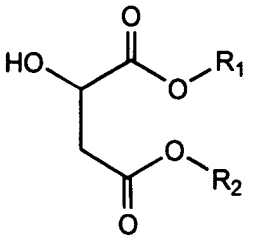
VERSION WITH MARKINGS TO SHOW CHANGES

1. (Amended) In a method for applying a coating of a water-based composition to a surface to partially or fully coat the surface, the composition comprising an aqueous medium which is at least 90 wt% water and containing an inorganic or organic compound and an effective amount of a surfactant for reducing the dynamic surface tension of the composition, the improvement which comprises employing as the surfactant a malate diester of the structure



where R1 and R2 are C3 to C6 alkyl groups.

12. (Amended) An aqueous composition comprising in an aqueous medium which is at least 90 wt% water an inorganic compound which is a mineral ore or a pigment or an organic compound which is a pigment, a polymerizable monomer, an oligomeric resin, a polymeric resin, a detergent, a herbicide, an insecticide, a fungicide, or a plant growth modifying agent and an effective amount of a malate diester for reducing the dynamic surface tension of the composition, the malate diester having the structure:



where R1 and R2 are a C3 to C6 alkyl group.